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EXAMINER
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LAZARO, DAVID R

ART UNIT	PAPER NUMBER
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2155

DATE MAILED: 04/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/845,083	<b>Applicant(s)</b> MANTEGNA ET AL.	
	<b>Examiner</b> David Lazaro	<b>Art Unit</b> 2155	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 13 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8-16, 18-26 and 28-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-16, 18-26 and 28-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

1. This office action is in response to the amendment filed 01/13/2006.
2. Claims 1, 11 and 21 were amended.
3. Claims 7, 17 and 27 are canceled.
4. Claims 31-33 are newly added.
5. Claims 1-6, 8-16, 18-26 and 28-33 are pending in this office action.

***Response to Amendment***

6. Applicant's arguments filed 01/13/2006 have been fully considered but they are not persuasive. See Response to Arguments. Accordingly, the rejections, as presented in the 10/13/2005 office action, are respectfully maintained.
7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action in relation to the newly added claims 31-33.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

9. Claims 1-3, 5, 6, 8-13, 15, 16, 18-23, 25, 26, 28-33 are rejected under 35 U.S.C. 102(a) as being anticipated by "Skew detection and compensation for Internet

audio applications" by Hodson et al., ICME 2000, July 2000, Vol. 3 (hereinafter Hodson).

10. With respect to Claims 1, 11 and 21, Hodson teaches a method and corresponding computer program and computer system for dynamic latency management in a real-time electronic communication comprising:

measuring a communication delay arising from a receiving data buffer (Page 1, section 2 and see Fig. 1 - skew detection is a measurement of communication delay and associated with a receiving buffer) ;

determining a latency adjustment necessary to adjust the size of the communication delay to within a predetermined range (Page 2, last paragraph of section 2 and first paragraph of section 3 - adjustments made based on a compensation algorithm with the goal to maintain the buffer occupancy within a constrained region);

determining a range for a size of the communication delay based on the measured communication delay (Page 2, 4<sup>th</sup> and last paragraph of section 2 and first paragraph of section 3 and Pages 3-4, section 5 which describes the hi and low water marks are determined based on communication delays related to the playout buffer); and

modifying a number of samples of a playback data block passing through the receiving data buffer based on the latency adjustment determined to be necessary to adjust the size of the communication delay and on the range determined for the size of the communication delays (Page 2, section 3 - adjustments made based on a compensation algorithm with the goal to maintain the buffer occupancy within a

constrained region, this includes modification of samples in the form of cutting or repeating particular samples);

wherein modifying the number of samples further comprises performing heuristic resampling of a playback block (Page 2, section 3, particularly the second paragraph under section 3 - the modifications are performed using heuristic resampling).

11. With respect to Claims 2, 12 and 22, Hodson teaches all the limitations of Claim 1, 11 and 21 respectively, wherein the number of samples is modified without introduction audible artifacts (Page 2, section 3, first paragraph and section 4, first paragraph).

12. With respect to Claims 3, 13 and 23, Hodson teaches all the limitations of Claim 1, 11 and 21 respectively, wherein measuring the communication delay comprises measuring an instantaneous communication delay associated with the receiving data buffer (Page 1, section 2 and see Fig. 1).

13. With respect to Claims 5, 15 and 25, Hodson teaches all the limitations of Claim 1, 11 and 21 respectively, wherein the real-time electronic communication includes an audio communication (Page 1, abstract).

14. With respect to Claims 6, 16, and 26, Hodson teaches all the limitations of Claim 1, 11 and 21 respectively, further comprising determining receiving buffer delay upper and lower bounds (Pages 1-2, Section 2).

15. With respect to Claims 8, 18 and 28, Hodson teaches all the limitations of Claim 1, 11 and 21 respectively, wherein performing heuristic resampling comprises: analyzing multiple consecutive samples of audio data in the playback block; identifying

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consecutive samples with minimal variation in a parameter of their data; and adjusting the number of samples in the identified consecutive samples (Page 2, section 3).

16. With respect to Claims 9, 19 and 29, Hodson teaches all the limitations of Claim 8, 18 and 28 respectively, wherein adjusting the number of samples comprises removing a sample from the identified consecutive samples (Page 2, section 3).

17. With respect to Claims 10, 20 and 30, Hodson teaches all the limitations of Claim 8, 18 and 28 respectively, wherein adjusting the number of samples comprises adding a sample from the identified consecutive samples (Page 2, section 3).

18. With respect to Claims 31, 32 and 33, Hodson further teaches wherein the range determined for the size of the communication delay is an optimal range (Page 2, 4<sup>th</sup> and last paragraph of section 2 and first paragraph of section 3 and Pages 3-4, section 5 which describes the hi and low water marks are determined based on communication delays related to the playout buffer)

### ***Claim Rejections - 35 USC § 103***

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. Claims 4, 14, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hodson in view of Examiner's official notice.

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21. With respect to Claims 4, 14 and 24, Hodson teaches all the limitations of Claims 1, 11 and 21 respectively, and further teaches measuring the instantaneous communication delay associated with the receiving data buffer two or more times (Page 1, section 2, paragraph 2 - running estimate).

Hodson does not explicitly disclose averaging the measurements. However, the examiner takes official notice that averaging of measurements is well known in the art.

As such, It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the teachings of Hodson and modify them such that they further comprise averaging the measurements. One would be motivated to have this, as it is well known in the art.

### ***Response to Arguments***

22. Applicants' arguments filed 01/13/2006 have been fully considered but they are not persuasive.

23. Applicants argue - *"However, Hodson fails to describe the basis for determining the low and high water marks, and thus the bounds for the range. Furthermore, Hodson does not describe any correlation between either of the low or high water marks (e.g., the lower and upper bounds of the range) and a measured communication delay arising from the receiver's playback buffer. Thus, the system of Hodson necessarily fails to determine a range for a size of a communication delay based on a measured communication delay that arises from a receiving data buffer, as recited in independent claim 1."*

- a. Examiner's response - On Pages 3-4, Section 5, Hodson describes the implementation of the high and low water marks. Specifically, the low water mark

is described as being determined based on the playout delay related to network effects (i.e., communications delay related to the playout buffer). The high water mark determination is also in part based on the communications delay as well as the determined low water mark. The examiner interprets these teachings as being sufficiently within the scope of "determining a range for a size of the communication delay based on the measured communication delay". Applicants' arguments are not persuasive.

24. Applicants argue - *"Moreover, to the extent that this rejection is maintained, Applicant traverses the official notice taken, and requests evidentiary support demonstrating the contention that "averaging of measurements (of instantaneous communication delays associated with a receiving data buffer)" is well known in the art."*

b. Examiner's response - In response to applicants' request of evidentiary support, the Examiner presents the evidence of U.S. Patent 5,825,771 by Cohen et al. (Cohen). Cohen discloses an invention related to the management of a playback buffer (See Summary of the Present Invention - Col. 2 - Col. 3). Cohen discloses that measurements of the buffer are typically averaged (Col. 8 lines 18-27). The examiner considers this to be sufficient evidentiary support for the official notice rejection.

### ***Conclusion***

25. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.



26. U.S. Patent 6,212,206 by Ketcham "Methods and computer executable instructions for improving communications in a packet switching network" April 3, 2001.

Discloses adjusting a jitter buffer based on arrival times versus jitter estimate times.

27. U.S. Patent 6,377,931 by Shlomot "Speech manipulation for continuous speech playback over a packet network" April 23, 2002. Discloses adjusting the rate at which packets are played out of a buffer based on the capacity of the buffer.

28. U.S. Patent 6,665,728 by Graumann et al. "Establishing optimal latency in streaming data applications that use data packets" December 16, 2003. Discloses adjusting latency based on an estimate determined by an under-run forecasting mechanism.

29. U.S. Patent 6,683,889 by Shaffer et al. "Apparatus and method for adaptive jitter buffers" January 27, 2004. Discloses dynamic adjustment of jitter buffer depth. Uses an upper and lower threshold in relation to buffer capacity. Does not explicitly state a mechanism for a determining an actual number samples to adjust.

30. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not


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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Lazaro whose telephone number is 571-272-3986. The examiner can normally be reached on 8:30-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on 571-272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
David Lazaro  
April 3, 2006

  
SALEH NAJJAR  
SUPERVISORY PATENT EXAMINER